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EXERCISE CAPACITY AND CARDIAC FUNCTION OF HEALTHY OBESITY ARE AS GOOD AS THOSE OF NON-OBESE PERSONS

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Background: Studies including healthy uncomplicated obesity on alteration of cardiac structure and function are rare. The purpose was to evaluate the impact of obesity on cardiac structure and function in preserved exercise capacity.

Methods: To assess the influence of obesity on LV function, total 303 subjects without evidence of heart, lung and kidney disease were evaluated; 147 obese subjects (74 men) defined as a body mass index (BMI) ≥25 kg/m2 and 129 non-obese controls (78 men). All subjects underwent transthoracic echocardiography and treadmill exercise test. The mitral early and late diastolic peak velocity (E, A), decelerating time (DT), mitral annular early and late diastolic peak velocity (Ea, Aa), LV end-diastolic dimension (LVEDD), LV ejection fraction (LVEF) were measured. Among those, data of 94 men and 74 women with preserved exercise capacity (≥ 12 METs in men, ≥11METs in women) were analyzed.

Results: In overall 303 subjects, obese men and women showed significantly increased LVEDD, LV mass index and blood pressure (BP) but decreased diastolic function and exercise METs compared with those of non-obese men and women. E/Ea ratio showed negative correlation with METs in obese men ($r=-0.32$, $p<0.001$) and women ($r=-0.40$, $p<0.001$). Obese men with preserved exercise capacity (n=37) showed increased LVEDD and BP compared to non-obese men with preserved exercise capacity (n=57). However, cardiac systolic and diastolic function and METs were not significantly different. Obese women with preserved exercise capacity (n=30) showed increased BP compared to non-obese women with preserved exercise capacity (n=44). However, cardiac diameter and systolic and diastolic function were not significantly different.

Conclusions: Obesity was associated with LV structural change, diastolic dysfunction and low exercise capacity. Obese persons with preserved exercise capacity have similar cardiac function compared with non-obese persons with preserved exercise capacity. Exercise capacity and cardiac function of healthy obesity are as good as those of non-obese persons.